

CLAIMS

1. A rotary switch mechanism comprising a dial unit that is allowed to rotate in steps each corresponding to a predetermined angle and a position sensor that rotates with a predetermined speed-reducing ratio relative to the rotation of said dial unit, with the rotational position of said dial unit determined based upon an output signal provided by said position sensor,

wherein said rotary switch mechanism includes a plurality of such position sensors and a detection switch that switches an output signal in correspondence to the rotational position of said dial unit;

wherein the entire angle range over which said dial unit is allowed to rotate is divided into a plurality of range blocks and each divided block is designated to one of said position sensors; and

wherein a position sensor to be used is selected based upon the output signal from the detection switch.

2. A rotary switch mechanism according to claim 1,

wherein said rotary switch mechanism includes three position sensors and two detection switches; and

wherein said position sensor to be used is selected based upon output signals provided by said two detection switches.

3. A rotary switch mechanism according to claim 2,

wherein said three position sensors are a first position sensor, a second position sensor and a third position sensor;

wherein said two detection switches are a first on/off switch and a second on/off

switch;

wherein the range over which said dial unit is allowed to rotate is divided into first through third range blocks, the output signal from said first detection switch is set to an ON state in the first block but set to an OFF state in the second and third range blocks and the output signal from said second detection switch is set to an OFF state in the first and second blocks but set to an ON state in said third block; and

wherein said first position sensor is used when the output signal from said first detection switch is in an ON state and the output signal from said second detection switch is in an OFF state, said second position sensor is used when the output signals from said first detection switch and said second detection switch are both in an OFF state, and said third position sensor is used when the output signal from said first detection switch is in an OFF state and the output signal from said second detection switch is in an ON state.

4. A rotary switch mechanism according to any of claims 1, 2 and 3,

wherein said detection switch is each turned on/off as a movable pin thereof comes into contact with a cam surface of a cam that rotates as said dial unit rotates, and said movable pin is moved via said cam.

5. A rotary switch mechanism according to any of claims 1, 2 and 3,

wherein a wall formed in an arc shape is caused to rotate as said dial unit rotates, said detection switch includes a movable pin disposed on the locus of the wall displacement and said detection switch enters an ON state as said movable pin comes into contact with said wall and is pressed by said wall to become displaced but remains in an OFF state otherwise.

6. A rotary switch mechanism comprising a dial unit allowed to rotate in steps each

corresponding to a predetermined angle and a position sensor that rotates with a predetermined speed-reducing ratio relative to the rotation of said dial unit, with the rotational position of said dial unit determined based upon an output signal provided by said position sensor,

wherein said rotary switch mechanism includes a detection switch that enters an ON state over a specific rotation range of said dial unit and remains in an OFF state over the remaining range;

wherein the range over which said detection switch is in an ON state is designated to specific rotational positions of said dial, whereas the rotational position of said dial unit is determined based upon the output signal provided by said position sensor over the range in which said detection switch remains in an OFF state.

7. A rotary switch mechanism according to claim 6,

wherein the range over which said detection switch is in an ON state is set at or near a terminal position assumed by said dial unit along the rotating direction thereof.

8. A rotary switch mechanism according to either claim 6 or claim 7,

wherein said rotary switch mechanism is used to select an output mode and includes a single detection switch, with the range over which said detection switch is in an ON state designated to an auto mode and the range over which said detection switch is in an OFF state designated to a manual setting mode.

9. A rotary switch mechanism according to either claim 6 or claim 7,

wherein said rotary switch mechanism is used to select an air flow volume and includes a single detection switch, with the range over which said detection switch is in an ON state designated to a fan-off mode and the range over which said detection switch is in an OFF state designated to a mode for setting the fan speed.

10. A rotary switch mechanism according to either claim 6 or claim 7,

wherein said rotary switch mechanism is used to select a temperature setting for the temperature within the cabin and includes two detection switches, with the range over which one of said detection switches is in an ON state designated to a mode for selecting a temperature setting lower than the lower limit of a regular temperature setting range, the range over which the other detection switch is in an ON state designated to a mode for selecting a temperature setting higher than the upper limit of the regular temperature setting range and the range over which the two detection switches are both in an OFF state designated to a mode for selecting a temperature setting within the regular temperature setting range.